

# SECONDARY SCHOOL STUDENTS' ATTITUDE TOWARDS THEIR LEARNING GEOMETRY: A SURVEY OF DIPHU TOWN SECONDARY SCHOOLS.

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**Abstract:** The study explores secondary school students' attitude towards learning geometry. In this present study the researcher adopts quantitative and descriptive survey method. All the students studying in class IX and X in secondary schools situated in Diphu town, Karbi Angling district of Assam constitutes the population of the study. Using stratified random sampling method, a sample of 400 students were drawn from 6 different schools. The research was done qualitatively by using a questionnaire that comprised of 20 Likert-type questions which were adopted from Fennema-Shermann Mathematics Scale (1977). The study investigates the difference in attitude of school students towards learning geometry by gender, and management of school. The study reveals that there exist significant differences in attitude towards learning geometry between male-female students, government-private school students.

**IndexTerms - Mathematics, geometry, attitude, learning**

## I. INTRODUCTION

Geometry, the study of space and spatial relationships, is an important and essential branch of mathematics. In the study of geometry, students learn about geometric shapes and structures and understand how to analyze their characteristics and relationships. In India, geometry is taught as a topic within mathematics in Secondary education. Geometry has taken place in curriculums since elementary education because of contributing development of students' critical thinking and problem solving activities, being an important area of mathematics that is used in daily life, helping students to realize the world around them and appreciate the worth of their world. Geometric concepts are contributing to learning concepts in other areas of mathematics. But the results of studies carried out by different researchers at different parts of the world show that students encounter a lot of difficulties while learning geometry.

Many studies have been carried out on the attitudes towards mathematics with respect to some variables. Most of the studies were primarily on the correlation between attitude and achievement and in these studies it was found that there was a meaningful correlation between attitude towards mathematics and education (Ma, X. & Kishor, N., 1997; Tapia and Marsh, 2000; Nicolaidou, M. & Philippou, G., 2003; Grootenboer, P. & Hemmings, B., 2007; Ahmed, S. & Bora, A., 2011). Although considerable research has been conducted on the beliefs and attitudes towards mathematics, relatively less research has been done on these topics towards geometry (Aktaş, M. C. & Aktaş, D. Y., 2012).

In India many researchers conducted studies regarding students attitude towards mathematics (Jain, 1979, Patel, 1984; Rajput, 1984; Kolhe, 1985; Singh 1986; Srinivasan and Sunderarajan, 1990; Rosaly, 1992; Ngailiankim, 2005; Sriraman, 2007; Ahmed & Bora, 2011; Patra & Mech, 2011; Kumar, A.A. & Devi, N., 2013). In India, very less research has been done on the field of attitude towards geometry. In this context this study will contribute to fill in the gap in this area.

## II. Students Attitude Towards Geometry:

Attitude towards geometry include liking, enjoying and interest in geometry, or the opposite, and at worst geometry phobia. This means that the students have to like geometry, enjoy the activities performed in geometry and have interest at heart for geometry.

The attitudes of pupils can be influenced by the attitudes of the teacher and his/her method of teaching. Studies done by Thompson (1993) had shown that the teachers' method of geometry teaching and his/her personality greatly accounted for the students' positive attitude towards geometry and that without interest and personal effort in learning geometry by the pupils, they can hardly perform well in the topic. According to Betiku (2001), teachers' content knowledge has a significant impact on students' performance. In this study, the researcher will focus on secondary school students' attitudes towards learning of geometry.

Mogari (1999) examined four components of attitudes in the attempt to investigate more components of attitudes in Euclidean Geometry. These were enjoyment, motivation, perception of the importance of geometry and freedom from fear of geometry.

## III. Objective of the Study:

The objective of the study is to evaluate secondary school students' attitude towards geometry.

## IV. Hypotheses:

The following hypotheses are formulated for the study.

H<sub>1</sub>: There is no significant difference between male and female student's attitude towards Geometry.

H<sub>2</sub>: There is no significant difference between the students of Govt/ Provincialized and Private schools regarding attitude towards mathematics.

#### V. Methodology:

In this present study the researchers adopt the descriptive survey method. All the students studying in class IX and X in secondary schools situated in Diphu Town, the headquarter of Karbi Angling district of Assam, constitutes the population of the study. A sample of four hundred students is selected from 6 secondary and higher secondary schools, situated at Diphu, for the study. 3 Govt./Provincialised and 3 private schools are selected at random for the study. The distribution of students are given in the following table:

School	Girls	Boys	Total
G <sub>1</sub>	30	27	57
G <sub>2</sub>	30	30	60
G <sub>3</sub>	30	32	62
P <sub>1</sub>	40	45	85
P <sub>2</sub>	40	44	84
P <sub>3</sub>	30	22	52
Total	200	200	400

Table1: The distribution of students

#### VI. Research Instrument:

The research was done qualitatively by using a questionnaire that comprised of 20 Likert-type questions which were adopted from Fennema-Shermann Mathematics Scale (1977). Students' Attitude Towards Geometry Scale (SATGS) is the research instrument. SATGS consists of two sections. Name, gender, community, category and school name of the student were asked in the section A. Section B consists of 20 questions. The questions are divided equally into four factors namely, confidence, enjoyment, future and every day. Some questions are positively worded and some are negatively worded. A pilot survey was done with SATGS on 20 students from 2 schools of Diphu area. Cronbach Alfa coefficient was computed to determine the reliability and the value obtained was 0.89.

#### VII. Data Analysis and Interpretation:

Mean, standard deviation, t- test and correlation were applied to analyse the collected data. The mean score of students' attitude towards mathematics is 44 out of 163. This indicates that secondary school students studying in Karbi Anglong district of Assam possess only 26.99% positive attitude towards learning geometry, which is very low.

Male student's attitude responses ( $\bar{x} = 50.19$ ,  $\sigma = 15.02$ ) are higher than that of female students ( $\bar{x} = 23.76$ ,  $\sigma = 10.34$ ). The calculated t- value for male and female students' attitude towards geometry is very large (43.96) compared to the tabulated value 3.291. Therefore the null hypothesis H<sub>1</sub> is rejected and so there exist a significant difference between male and female student's attitude towards learning geometry.

Attitude Responses of students are higher in private schools ( $\bar{x} = 46.5$ ,  $\sigma = 16.08$ ) than in govt. schools ( $\bar{x} = 29.4$ ,  $\sigma = 13$ ). The calculated t- value for govt. and private school students' attitude towards learning geometry is 4.031 which is much higher than the tabulated value 1.96 and therefore the null hypothesis H<sub>2</sub> is rejected.

#### VIII. Conclusion and recommendations:

In this study the researcher tries to investigate the level of secondary school students' attitude towards geometry learning. It is found that attitude level is not satisfactory. Attitude level is highly affected by gender of the students and management type of the schools.

Further study may be carried out to investigate the effective factors of students' less positive attitude towards learning geometry.

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